

Program for the 11th International Conference on Homocysteine & One-Carbon Metabolism 2017

SUNDAY 14 May 2017

14:00-16:30 Registration and free entrance at the Aros Arts Museum, Aros Allé 2, DK-8000 Aarhus C

MONDAY 15 May 2017

08:00-09:00 Registration at the Lake Auditorium Reception

SESSION 1: Challenging paradigms and conventions

Plenary session. Conference room: Lake Auditorium Per Kirkeby
Chaired by Ralph Green and Jacob Selhub

09:00-09:20 Welcome by Johan Frederik Håkonsen Arendt and Eva Greibe, Organizers, Denmark

09:20-10:05 Black holes in the universe of vitamin B12
Speaker: Ebba Nexø, Guest of honor, Aarhus, Denmark – **Abstract O1**

10:05-10:30 Homocysteine determination today – is it still relevant?
Speaker: Helga Refsum, Oslo, Norway - **Abstract O2**

10:30-10:50 Morning coffee break – Lake Auditorium Hallways/William Scharff Auditorium

SESSION 2: B-vitamins and genetics – what can we learn from rare genetic disorders?

Plenary session. Conference room: Lake Auditorium Per Kirkeby
Chaired by Henk Blom and Jean-Louis Gueant

10:50-11:15 From the clinic to the mouse room - Lessons learned in the regulation of folate transport
Speaker: Richard Finnell, Texas, USA – **Abstract O3**

11:15-11:40 Surprises from the study of patients with inherited disorders of cobalamin metabolism
Speaker: David Rosenblatt, Montreal, Canada – **Abstract O4**

SESSION 3: Consensus guidelines for inherited disorders

Plenary session. Conference room: Lake Auditorium Per Kirkeby
Chaired by David Rosenblatt and Brian Fowler

11:40-12:05 European network and registry for homocystinurias and methylation defects (E-HOD)
Speaker: Henk Blom, Freiburg, Germany – **Abstract O5**

12:05 –12:30 E-HOD put into practice
Speaker: Ida Schwartz, Porto Alegre, Brazil – **Abstract O6**

12:30-13:40 Lunch buffet – Cafeteria for Social and Political Sciences

SESSION 4: Defining diagnoses – are biochemical cut-offs ancient history?

Plenary session. Conference room: Lake Auditorium Per Kirkeby

Chaired by Ebba Nexø and Sally Stabler

13:40-14:05 Combined indicator of B12 deficiency (cB12). Optimized sequential application of individual biomarkers and their combinations
Speaker: Sergej Fedosov, Aarhus, Denmark – **Abstract O7**

14:05-14:30 Assay of cobalamin analogues in blood and animal tissues with potential contribution to cobalamin values
Speaker: Sally Stabler, Colorado, USA – **Abstract O8**

14:30-14:55 One-carbon metabolism and vitamin nutritional status – metabolomic assessment in health and disease states
Speaker: Jesse Gregory, Florida, USA – **Abstract O9**

14:55-15:00 Vitamin B12 and folate status of older Irish adults: findings from TILDA
Speaker: Eamon Laird, Dublin, Ireland – **Abstract 10**

15:00-15:30 Afternoon coffee break – Lake Auditorium Hallways/William Scharff Auditorium

SESSION 5: B vitamins and life-style factors

Parallel session. Conference room: Lake Auditorium Jeppe Vontilius

Chaired by Anne Molloy and Shantanu Sengupta

15:30-15:55 One-carbon metabolism and fetal programming
Speaker: Chittaranjan Yajnic, Pune, India – **Abstract O11**

15:55-16:10 Markers of folate and vitamin B12 status are associated with insulin resistance and metabolic syndrome severity in morbidly obese patients
Speaker: Jean-Louis Gueant, Nancy, France – **Abstract O12**

16:10-16:15 Profiling of folates and related sulfur amino acids in SHR rat model of metabolic syndrome
Speaker: Victor Kozich, Prague, Czech Republic – **Abstract O13**

16:15-16:20 Genetic variation in one-carbon metabolism, prenatal air pollution exposure, and cardiovascular phenotypes in children
Speaker: Caitlin Howe, California, USA – **Abstract O14**

16:20-16:25 The effect of folic acid supplementation on insulin sensitivity and type 2 diabetes – A meta-analysis of randomized controlled trials
Speaker: Mads Lind, Copenhagen, Denmark – **Abstract O15**

SESSION 6: Animal models for B vitamin-related pathologies

Parallel session. Conference room: Lake Auditorium Merete Barker

Chaired by Richard Finnell and Joshua Miller

- 15:30-15:55 Role of folate receptor antibodies in neuro-developmental disorders
Speaker: Edward Quadros, New York, USA – **Abstract O16**
- 15:55-16:10 Successful generation of a neuronal conditional *Lmbrd1* knockout mouse
Speaker: Frank Rutsch, Muenster, Germany – **Abstract O17**
- 16:10-16:15 Engineering and characterization of an enzyme replacement therapy for classical homocystinuria
Speaker: Tomas Majtan, Colorado, USA – **Abstract O18**
- 16:15-16:20 Transcriptional repression of male-specific MUP20 expression in female mice is relieved by the inactivation of cystathionine- β synthase gene
Speaker: Hieronim Jakubowski, New Jersey, USA – **Abstract O19**
- 16:20-16:25 One-Carbon metabolism and neural tube closure defects
Speaker: Nicholas Greene, London, UK – **Abstract O20**

SOCIAL EVENT:

- 17:30-19:00 Welcome reception
City Hall, Soender Allé 2, DK-8000 Aarhus C

TUESDAY 16 May 2017

SESSION 7: Nutrition during pregnancy and infancy – pathology and physiology

Plenary session. Conference room: Lake Auditorium Per Kirkeby

Chaired by Eva Greibe and Alex Brito

- 09:00-09:25 B vitamin status in non-pregnant, pregnant and lactating mothers and their infants
Speaker: Anne-Lise Bjorke-Monsen, Bergen, Norway – **Abstract O21**
- 09:25-09:50 Parental one carbon metabolism, pregnancy outcome and child development and health
Speaker: Michelle Murphy, Reus, Spain – **Abstract O22**
- 09:50-10:05 Utility of newborn screening markers to diagnose newborns at risk of vitamin B-12 deficiency second to maternal vitamin B-12 deficiency
Speaker: Theresa Schroder, Vancouver, Canada – **Abstract O23**
- 10:05-10:10 Breast milk levels of one-carbon metabolites and infant postnatal growth
Speaker: Carles Lerin, Barcelona, Spain – **Abstract O24**
- 10:10-10:15 Higher cord blood unmetabolized folic acid (PGA) levels are associated with the development of food allergy in children
Speaker: Emily McGowan, Virginia, USA – **Abstract O25**
- 10:15-10:30 The effect of folate on vitamin B12 depletion-induced inhibition of nuclear thymidylate biosynthesis and neural tube defects
Speaker: Martha Field, New York, USA – **Abstract O26**

10:30-11:00 Morning coffee break – Lake Auditorium Hallways/William Scharff Auditorium

SESSION 8: Molecular and cellular mechanisms of B vitamins

Parallel session. Conference room: Lake Auditorium Jeppe Vontilius

Chaired by Viktor Kozich and Sergey Fedosov

11:00-11:25 Cellular stress is a key actor of a common scenario, which participates to the high variability of neurological and visceral manifestations of cobalamin disorders
Speaker: Jean-Louis Gueant, Nancy, France – **Abstract O27**

11:25-11:50 Molecular characterization of the cblC disease reveals new pathways in pathogenesis
Speaker: Luciana Hannibal, Freiburg, Germany – **Abstract O28**

11:50-12:05 Methionine synthase and methionine synthase reductase interact with MMACHC and with MMADHC
Speaker: David Coelho, Nancy, France – **Abstract O29**

12:05-12:10 Arsenic Targets Folate-dependent *de novo* Thymidylate Synthesis in the Nucleus Leading to Neural Tube Defects
Speaker: Patrick Stover, New York, USA – **Abstract O30**

12:10-12:15 Proteasomal degradation of ALDH1L1 during the transition from G0/G1 to S phase
Speaker: Sergey Krupenko, North Carolina, USA - **Abstract O31**

SESSION 9: Nutrition and disease

Parallel session. Conference room: Lake Auditorium Merete Barker

Chaired by Sally Stabler and Barry Shane

11:00-11:45 New perspectives on vitamin B-12 deficiency in low income populations: assessment and prevalence
Joint presentation by Lindsey Allen and Alex Brito, California, USA – **Abstract O32**

11:45-12:00 Cow milk, buffalo milk or vitamin pills for improving vitamin B12 status: A four week prospective study
Speaker: Sadanand Naik, Pune, India - **Abstract O33**

12:00-12:15 Genetic epidemiology of static and functional biomarkers of vitamin B12 status in older adults
Speaker: Kourosh Ahmadi, Surrey, UK – **Abstract O34**

12:15-12:20 Vitamin B12 deficiency affects distinct pathways in males and females
Speaker: Swati Warsney, New Delhi, India – **Abstract O35**

12:20-13:30 Dine with a Senior Researcher – Cafeteria for Social and Political Sciences
Chair: Ebba Nexø, Aarhus, Denmark

SESSION 10: Poster session 1

Lake Auditorium Hallways

Chaired by Michelle Murphy, Alex Brito, Ebba Nexo and Richard Finnell

13:30-14:30 Poster session 1

14:30-15:00 Afternoon coffee break – Lake Auditorium Hallways/William Scharff Auditorium

SESSION 11: Cognition, dementia, and B vitamins – animal models, trials and epidemiology

Plenary session. Conference room: Lake Auditorium Per Kirkeby

Chaired by Johan Arendt and [to be announced]

15:00-15:25 How does the brain mediate the effects of low vitamin B12 and raised homocysteine on cognition?

Speaker: David Smith, Oxford, UK - **Abstract O36**

15:25-15:50 Homocysteine and the Brain-Body divide

Speaker: Aron Troen, Jerusalem, Israel - **Abstract O37**

15:50-16:05 Behavioral alterations associated with vitamin B12 deficiency in the TCBLR/*CD320* KO mouse

Speaker: Jeffrey Sequiera, New York, USA - **Abstract O38**

16:05-16:20 Vitamin B12, folate, and sulfur amino-acids as risk factors for dementia and cognitive decline: a longitudinal population based study

Speaker: Babak Hooshmand, Stockholm, Sweden – **Abstract O39**

16:20-16:25 Folate receptor alpha autoimmunity in low-functioning autism and response to folinic acid treatment

Speaker: Vincent Ramaekers, Liège, Belgium – **Abstract O40**

16:25-16:30 Plasma and cerebrospinal fluid biomarkers of the methylation cycle in cognitively normal and mild dementia of the Alzheimer type

Speaker: Teodoro Bottiglieri, Texas, USA – **Abstract O41**

WEDNESDAY 17 May 2017

SESSION 12: B vitamins and cancer

Plenary session. Conference room: Lake Auditorium Per Kirkeby

Chaired by David Smith and Ottar Nygård

09:00-09:25 Elevated vitamin B12 levels – overlooked or overrated?

Speaker: Johan Arendt, Aarhus, Denmark – **Abstract O42**

09:25-09:50 Challenges to evaluating evidence of risks from high intakes of folic acid

Speaker: Abee L. Boyles, North Carolina, USA – **Abstract O43**

09:50-10:05 Impaired functional vitamin B6 status is associated with increased risk of lung cancer in the Lung Cancer Cohort Consortium (LC3)

Speaker: D. Theofylaktopoulou, Bergen, Norway – **Abstract O44**

- 10:05-10:20 Why Cancer Stem Cells are methionine dependent?
Speaker: Racha Zgheib, Nancy, France – **Abstract O45**
- 10:20-10:25 Metabolic changes in GNMT knockout mice during progression from steatosis to hepatocellular carcinoma.
Speaker: Natalia I. Krupenko, North Carolina, USA – **Abstract O46**
- 10:25-10:55 Morning coffee break – Lake Auditorium Hallways/William Scharff Auditorium

SESSION 13: Bioavailability of B vitamins

Parallel session. Conference room: Lake Auditorium Jeppe Vontilius

Chaired by Ralph Green and Michelle Murphy

- 10:55-11:20 Principle for studying the potency of the different vitamin D active compounds – usable in the vitamin B community?”
Speaker: Jette Jakobsen, Copenhagen, Denmark – **Abstract O47**
- 11:20-11:45 B12 in milk, its protein complexes and bioavailability
Speaker: Sergey Fedosov, Aarhus, Denmark – **Abstract O48**
- 11:45-12:00 Development and validation of the concept of personalized folate supplementation to achieve protective RBC-folate concentrations in young women
Speaker: Klaus Pietrzik, Bonn, Germany – **Abstract O49**
- 12:00-12:15 Bovine transcobalamin enhances *in vitro* intestinal absorption of cobalamin in a receptor-associated protein sensitive manner
Speaker: Christian Juul, Aarhus, Denmark – **Abstract O50**
- 12:15-12:20 Vitamin B12 from dairy sources: potential benefits for bone health; Findings from the TUDA Study
Speaker: Eamon Laird, Dublin, Ireland – **Abstract O51**

SESSION 14: Betaine and Choline – the link to B vitamins and homocysteine

Parallel session. Conference room: Lake Auditorium Merete Barker

Chaired by Steven Zeisel and Viktor Kozich

- 10:55-11:40 Mechanisms whereby choline modulates organ development and function
Speaker: Steven Zeisel, North Carolina, USA – **Abstract O52**
- 11:40-11:55 Results from a folic acid and creatine supplementation trial in Bangladesh: Differences in treatment effect on arsenic methylation, blood arsenic, and homocysteine by baseline choline and betaine status
Speaker: Anne Bozack, New York, USA – **Abstract O53**
- 11:55-12:10 Serum betaine and total vitamin B-12, but not folate, concentrations are negative predictors of total homocysteine concentration in Canadian pregnant women of South Asian and Caucasian ethnicity
Speaker: Yvonne Lamers, Vancouver, Canada – **Abstract O54**

12:10-12:15 A Systematic Review and Meta-analysis on the efficacy of Betaine in the treatment of Cistathione B-synthase deficient patients who are non-responsive to pyridoxine
Speaker: Alcía Dorneles Dornelles, Porte Alegre, Brazil – **Abstract O55**

12:15-12:20 The Effects of Betaine on Brain and Liver in Methionine & Choline Deficient Rats
Speaker: Nur Abu Ahmad, Jerusalem, Israel – **Abstract O56**

12:20-13:30 Lunch buffet – Cafeteria for Social and Political Sciences

SESSION 15: Poster session 2

Lake Auditorium Hallways

Chaired by Joshua Miller, Luciana Hannibal, Lindsay Allen and Barry Shane

13:30-14:30 Poster session 2

14:30-15:00 Afternoon coffee break - Lake Auditorium Hallways/William Scharff Auditorium

SESSION 16: B vitamins and treatment

Plenary session. Conference room: Lake Auditorium Per Kirkeby

Chaired by Johan Arendt, Anne Molloy

15:00-15:25 Cyano-B12 versus hydroxo-B12: New insights on transport and accumulation
Speaker: Eva Greibe, Aarhus, Denmark - **Abstract O57**

15:25-15:50 Bacterial folates provide an exogeneous signal for C. elegans germline stem cell proliferation
Speaker: Jacob Selhub, Massachusetts, USA - **Abstract O58**

15:50-16:05 Vitamin B12 status and absorption before and after bariatric surgery: A prospective study
Speaker: Linda Kornerup, Aarhus, Denmark – **Abstract O59**

16:05-16:20 Paraoxonase 1 protects against homocysteine-thiolactone accumulation in humans
Speaker: Joanna Perła-Kajan, Poznan, Poland – **Abstract O60**

16:20-16:25 The role of homocysteine and B vitamins in telomere length: results from the cross-sectional and interventional trials
Speaker: Irene Pusceddu, Saarland, Germany – **Abstract O61**

16:25-16:30 Development of an Enzyme Therapeutic for Classical Homocystinuria
Speaker: Matthew Bonem, Texas, USA – **Abstract O62**

SOCIAL EVENT:

19:00- Dinner party
Centralvaerkstedet, Vaerkmestergade 7-9, DK-8000 Aarhus C
(coaches will be arranged)
Festive speaker: Ralph Green, California, USA

THURSDAY 18 May 2017

SESSION 17: B vitamins, homocysteine and cardiovascular disease

Plenary session. Conference room: Lake Auditorium Per Kirkeby

Chaired by Jacob Selhub and David Smith

- 09:30-09:55 Lowering homocysteine levels to prevent stroke: unraveling the complexity of the evidence
Speaker: J. David Spence, London, Canada – **Abstract O63**
- 09:55-10:20 Plasma Homocysteine, B vitamin treatment and cardiovascular disease: still relevant to study?
Speaker: Ottar Nygård, Bergen, Norway – **Abstract O64**
- 10:20-10:35 Studies on the influence of folic acid, riboflavin, and the methylenetetrahydrofolate reductase (MTHFR) C677T polymorphism on nitric oxide production and blood pressure
Speaker: Joshua Miller, New Jersey, USA – **Abstract O65**
- 10:35-10:50 Neopterin as an effect modifier of the cardiovascular risk associated with total homocysteine – a two-cohort study of patients with coronary heart disease
Speaker: Espen Bjørnstad and Robert Borsholm, Bergen, Norway – **Abstract O66**
- 10:50-11:15 Morning coffee break – Lake Auditorium Hallways/William Scharff Auditorium

SESSION 18: Future for the conference and research society

Plenary session. Conference room: Lake Auditorium Per Kirkeby

Chaired by David Rosenblatt and Henk Blom

- 11:15-11:40 The International Conference on Homocysteine and One-Carbon Metabolism: Quo Vadis
Speaker: Brian Fowler, Basel, Switzerland - **Abstract O67**
- 11:40-12:05 The Pernicious Anaemia Society
Speaker: Founder & Chair of PAS, Martyn Hooper – **Abstract O68**
- 12:30-13:00 Closing remarks and announcing oral and poster prize winners
Johan Arendt, Eva Greibe, Ebba Nexø
- 13:00 - Lunch boxes for departure – Lake Auditorium Hallways